

# WHAT IS CLAIMED IS:

1. A wireless communication network for communication between first and second rooms separated by a partition, and comprising first and second wireless communication apparatuses having radio irradiating surfaces.

said partition having a first surface facing said first room and a second surface facing said second room, and

said first wireless communication apparatus being installed so that the radio irradiating surface thereof is adhered to the first surface of said first room, said second wireless communication apparatus being installed so that the radio irradiating surface thereof is adhered to the second surface of said second room and, thus, said first and second wireless communication apparatuses establishing a wireless connection by setting said partition as a radio transmitting medium.

2. A wireless communication apparatus according to Claim 1, wherein said first and second wireless communication apparatuses respectively have transmitting antenna and receiving antenna in which, when an irradiating angle or an angle of field of view is equal to  $0^\circ$  and  $\pm 45^\circ$ , an antenna gain is equal to a predetermined value or more.

3. A wireless communication network according to Claim 2, wherein said first and second wireless communication apparatuses respectively transmit a radio signal whose carrier frequency is 10 GHz or more, via said wireless connection.

4. A wireless communication network according to Claim 3, wherein said first and second wireless communication apparatuses respectively transmit a radio signal whose carrier signal ranges 55 GHz to 65 GHz, via said wireless connection.

5. A wireless communication network according to Claim 2, wherein each of said first and second wireless communication apparatuses comprises:

a first physical layer circuit for transmitting data to a wired communication network; and

a second physical layer circuit for transmitting data via said wireless connection; and

a repeater function is implemented by transmitting data between said first physical layer circuit and said second physical layer circuit.

6. A wireless communication network according to Claim 5, wherein said wired communication network is a network which conforms to an IEEE 1394 standard.

7. A wireless communication network according to Claim 2, wherein each of said first and second wireless communication apparatuses comprises:

a third physical layer circuit for transmitting data to a wired communication network;

a fourth physical layer circuit for transmitting data via said wireless connection; and

a data link layer circuit for processing data inputted by said third physical layer circuit every data frame and outputting it to said fourth physical layer circuit, and processing data inputted by said fourth physical layer circuit every data frame and outputting to it said third physical layer circuit, and

said data link layer circuit outputs only data to be outputted to said third or fourth physical layer circuit to implement a bridge function.

8. A wireless communication network according to Claim 7, wherein said wired communication network is a network which conforms to an IEEE 1394 standard.

9. A wireless communication network according to Claim 2, wherein one of said first and second wireless communication apparatuses comprises:

a first physical layer circuit for transmitting data to a wired communication network; and

a second physical layer circuit for transmitting data via said wireless connection, and

said first physical layer circuit transmits data to said second physical layer circuit to implement a repeater function, and

wherein the other of said first and second wireless communication apparatuses comprises:

a third physical layer circuit for transmitting data to a wired communication network;

a fourth physical layer circuit for transmitting data via said wireless connection; and

a data link layer circuit for processing data inputted by said third physical layer circuit every data frame and outputting it to said fourth physical layer circuit, and processing data inputted by said fourth physical layer circuit every data frame and outputting it to said third physical layer circuit, and

said data link layer circuit outputs only data to be outputted to said third or fourth physical layer circuit to implement a bridge function.

10. A wireless communication network according to Claim 9, wherein said wired communication network is a network which conforms to an IEEE 1394 standard.

11. A wireless communication apparatus which is used for the wireless communication network according to any one of Claims 5, 7, and 9, and comprising signal intensity display means for displaying an intensity of a signal which is received from said wireless connection.

12. A wireless communication apparatus which is used for the wireless communication network according to any one of Claims 5, 7, and 9, and comprising first directivity control means for controlling a directivity of said receiving antenna so that an intensity of a radio signal received via said receiving antenna is maximum.

13. A wireless communication apparatus according to Claim 12, further comprising:

angle display means for displaying an acute angle formed by said first surface or said second surface of said partition to which said apparatus is installed, and a direction in which an antenna gain of said receiving antenna is maximum.

14. A wireless communication apparatus according to Claim 12, further comprising:

adjusting direction display means for displaying a direction in which closer to  $90^\circ$  is an acute angle formed by said first surface or said second surface of said partition to which said apparatus is installed, and a direction in which an antenna gain of said receiving antenna is maximum.

15. A wireless communication apparatus according to Claim 12, further comprising:

second directivity control means for controlling the directivity of said transmitting antenna so that it matches the directivity of said receiving antenna.

16. A wireless communication apparatus comprising:

a first physical layer circuit for transmitting data to a wired communication network; and

a second physical layer circuit for transmitting data via a wireless connection,

wherein a repeater function is implemented by transmitting data between said first physical layer circuit and said second physical layer circuit.

17. A wireless communication apparatus according to Claim 16, further comprising:

a transmitting antenna; and

a receiving antenna,

wherein in said transmitting antenna and said receiving antenna, when an irradiating angle or an angle of field of view is equal to  $0^\circ$  and  $\pm 45^\circ$ , an antenna gain is equal to a predetermined value or more.

18. A wireless communication apparatus according to Claim 16, further comprising:

a frequency filter for preventing the reception of a signal having the same radio as radio transmitted by said apparatus.

19. A wireless communication apparatus according to Claim 16, wherein said apparatus has a radio irradiating surface and can be fixed by adhering said radio irradiating surface to a partitioning surface.

20. A wireless communication apparatus, comprising:

a third physical layer circuit for transmitting data to a wired communication network;

a fourth physical layer circuit for transmitting data via a wireless connection; and

a data link layer circuit for processing data inputted by said third physical layer circuit every data frame and outputting it to said fourth physical layer circuit, and processing data inputted by said fourth physical layer circuit every data frame and outputting it to said third physical layer circuit, and

said data link layer circuit outputs only data to be outputted to said third or fourth physical layer circuit to implement a bridge function.

21. A wireless communication apparatus according to Claim 20, further comprising:

a transmitting antenna; and

a receiving antenna,

wherein in said transmitting antenna and said receiving antenna, when an irradiating angle or an angle of field of view is equal to  $0^\circ$  and  $\pm 45^\circ$ , an antenna gain is equal to a predetermined value or more.

22. A wireless communication apparatus according to Claim 20, further comprising:

a frequency filter for preventing the reception of a signal having the same radio as radio transmitted by said apparatus.

23. A wireless communication apparatus according to Claim 20, wherein said apparatus has a radio irradiating surface and can be fixed by adhering said radio irradiating surface to a partitioning surface.